

**ORIGINAL****FILED**

FEB 8 2011

U.S. COURT OF  
FEDERAL CLAIMS**IN THE UNITED STATES COURT OF FEDERAL CLAIMS****LIBERTY AMMUNITION, LLC,****Plaintiff,****vs.****THE UNITED STATES,****Defendant.**No. **11-84 C****COMPLAINT**

Plaintiff, Liberty Ammunition, LLC ("Plaintiff" or "Liberty"), by way of its  
Complaint against The United States ("Defendant" or "US"), alleges as follows:

**NATURE OF ACTION**

1. This is an action for patent infringement arising under the patent laws of  
the United States, Title 35, United States Code, and for breach of contract.

**THE PARTIES**

2. Plaintiff, Liberty Ammunition, LLC, is a Delaware limited liability  
corporation with a corporate headquarters located at 2325 Ulmerton Road, Suite  
14, Clearwater, Florida 33762.

3. Defendant is the United States Government, acting through several of  
its agencies, including the Department of the Army and, more generally, the  
Department of Defense.

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JURISDICTION

4. Jurisdiction is conferred upon this Court over the subject matter of this action pursuant to 28 U.S.C. §§1491 and 1498 and the doctrines of pendent and supplemental jurisdiction.

COUNT I

**(Patent Infringement)**

5. Liberty hereby repeats and re-alleges paragraphs 1 through 4 above as if fully set forth herein.

6. U.S. Patent No. 7,748,325 ("the '325 patent") was duly and legally issued on July 6, 2010, and is entitled "Firearms Projectile." A true copy of the '325 patent is annexed as Exh. A hereto.

7. Liberty is the owner, by assignment, of all right, title and interest in and to the '325 patent.

8. Defendant has committed and continues to commit acts of patent infringement of claims of the '325 patent by having made, acquiring, using and exporting firearms projectiles covered by the "the '325 patent in and from the United States.

9. The infringement by Defendant of the '325 patent is in direct violation of Liberty's right under 35 U.S.C. § 271, et seq. to exclude others from making, having made, using and exporting products covered by one or more claims of the '325 patent.

10. Plaintiff has given Defendant notice of its said infringement.

11. Liberty has and will continue to suffer costs, fees and damage from Defendant's infringement of the '325 patent.



**COUNT II**

**(Breach of Contract)**

12. Liberty hereby repeats and re-alleges paragraphs 1 through 4 above as if fully set forth herein.

13. On or about February 17, 2005, June 23, 2005 and January 11, 2006 Defendant entered into and/or received the benefit of Bilateral Non-Disclosure Agreements (the "Agreements"). True copies of the Agreements are annexed hereto as Exhs. B, C and D, respectively.

14. Pursuant to the Agreements, confidential information disclosed by one party to the other was required to be held in confidence by the receiving party. Information and material provided by Plaintiff to Defendant under the Agreement was protected from dissemination and from use by Defendant other than as authorized by Plaintiff.

15. Defendant materially breached the Agreements in diverse ways, *inter alia* by disclosing confidential information it received from Plaintiff covered by the Agreements to unauthorized recipient or recipients, and by purchasing and using firearms projectiles that embody the purloined confidential information without the authorization or consent of Plaintiff.

16. Defendant's unauthorized disclosure and use of Plaintiff's confidential information was in violation of Defendant's obligations under the Agreements.

17. Liberty has suffered costs, fees and damage resulting from Defendant's material breach of the Agreements and disclosure of Liberty's confidential information.



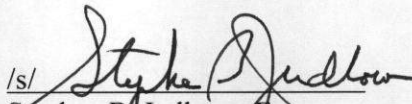
**PRAYER FOR RELIEF**

**WHEREFORE**, Plaintiff respectfully prays for Judgment against Defendant

Decreeing:

- (a) That Defendant has infringed and is infringing claims of the '325 patent;
- (b) Awarding Liberty its damages in connection with Defendant's acts of infringement of the '325 patent,
- (c) Awarding Liberty its damages in connection with Defendant's breach of the Bilateral Non-Disclosure Agreements;
- (d) Awarding Liberty its attorney's fees, costs, expert fees and disbursements, and disbursements incurred in connection with the prosecution of this litigation; and
- (e) Awarding Liberty interest, and such other and further relief as the Court may deem just and proper.

By:

  
/s/ Stephen B. Judlowe, Esq.  
Joseph P. La Sala, Esq.

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*Attorneys for Plaintiff Liberty Ammunition,  
LLC*

Dated: February 7, 2011



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US007748325B2

(12) **United States Patent**  
**Marx**

(10) **Patent No.:** **US 7,748,325 B2**  
(45) **Date of Patent:** **Jul. 6, 2010**

(54) **FIREARMS PROJECTILE**

(75) **Inventor:** **PJ Marx**, Sarasota, FL (US)

(73) **Assignee:** **Liberty Ammunition, LLC**, Clearwater, FL (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 729 days.

(21) **Appl. No.:** **11/255,261**

(22) **Filed:** **Oct. 21, 2005**

(65) **Prior Publication Data**

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(51) **Int. Cl.**  
**F42B 14/02** (2006.01)  
**F42B 30/02** (2006.01)

(52) **U.S. Cl.** ..... **102/517; 102/506; 102/524; 102/501**

(58) **Field of Classification Search** ..... **102/524, 102/525, 526, 527, 501, 506, 512, 513, 517**  
See application file for complete search history.

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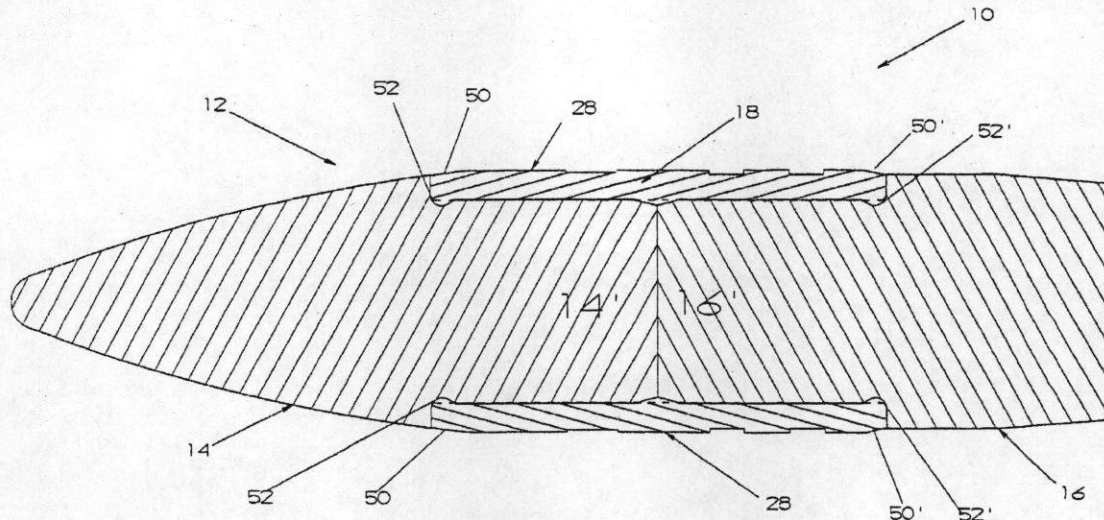
*Primary Examiner*—James S Bergin

(74) *Attorney, Agent, or Firm*—Anton J. Hopen; Smith & Hopen, P.A.

(57) **ABSTRACT**

A projectile structured to be discharged from a firearm comprising a body including a nose portion and a tail portion separable from one another when the projectile strikes a target. The body further includes an interface disposed intermediate opposite ends of the body of the projectile and structured to removably interconnect the nose and tail portions. Separation of the nose and tail portions such as when striking a soft tissue or like material target is caused by the tumbling of the projectile and the cooperative structuring of the interface to facilitate separation of the nose and tail portions. Further, the interface is disposed, dimensioned and structured to define the primary area of contact of the projectile body with the rifling or interior surface of the barrel of the firearm. At least one additional embodiment of the projectile comprises one of the nose or tail portions, preferably the tail portion structured to contain a supplemental payload which is carried to the target upon discharge of the firearm.

**42 Claims, 6 Drawing Sheets**



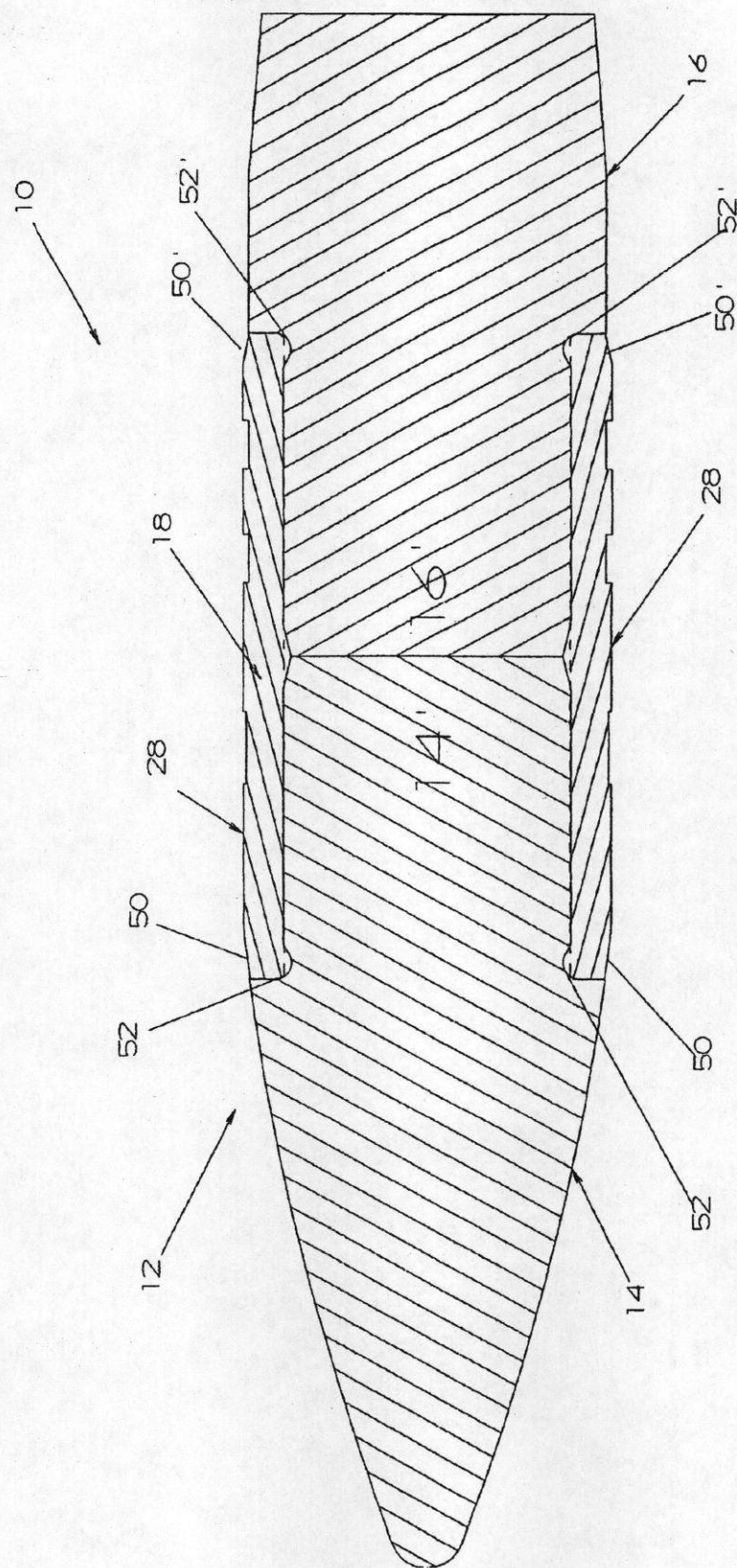


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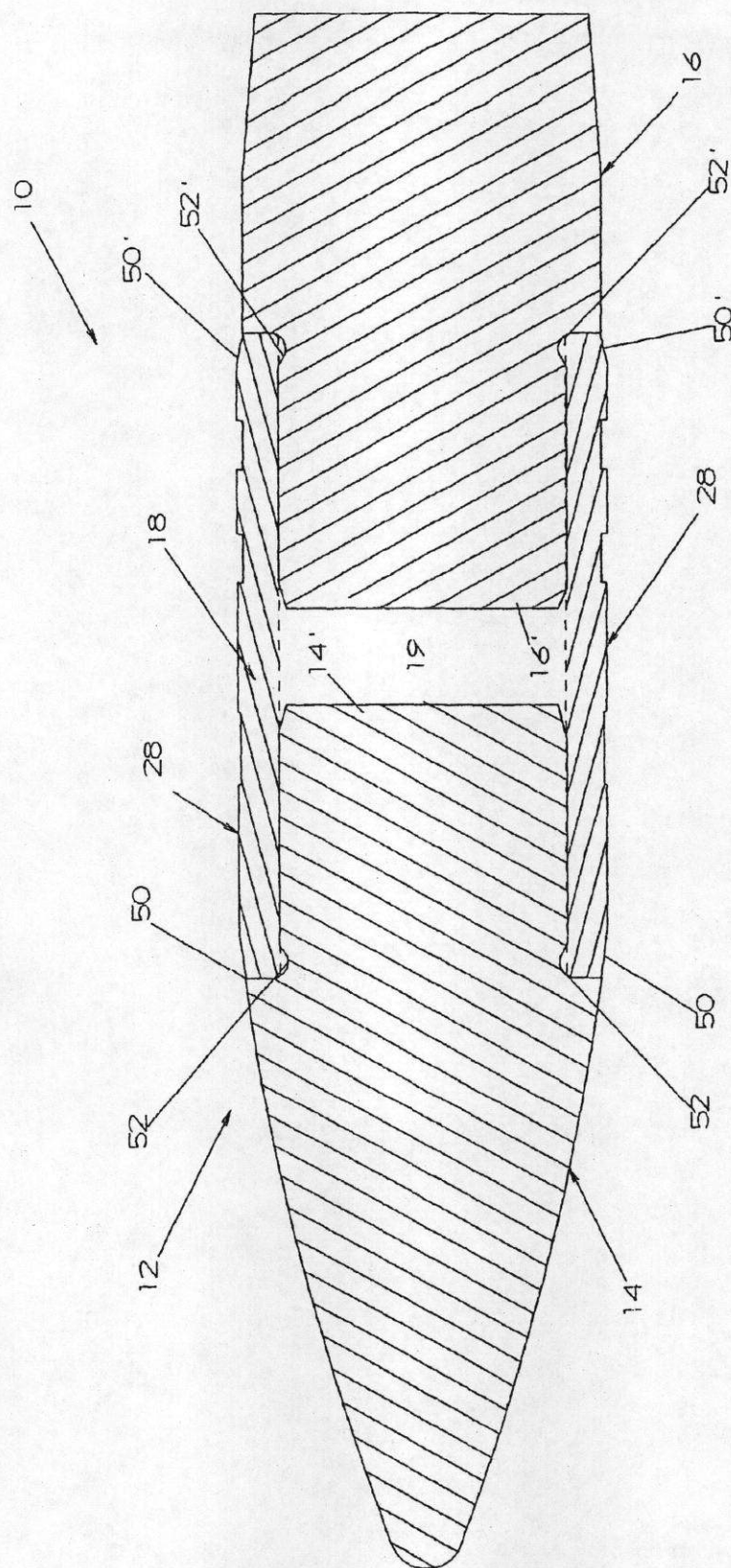


FIGURE 1A



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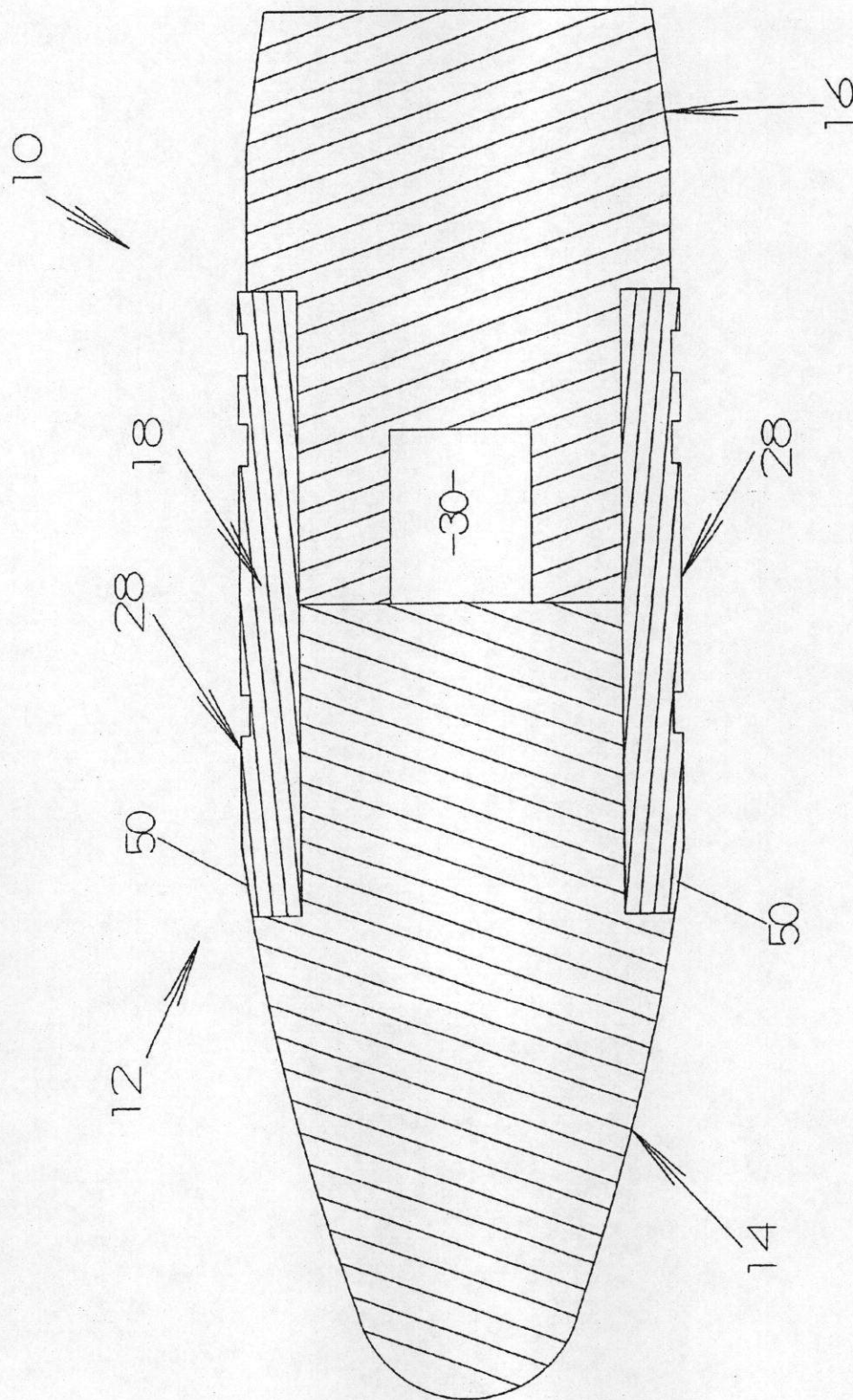
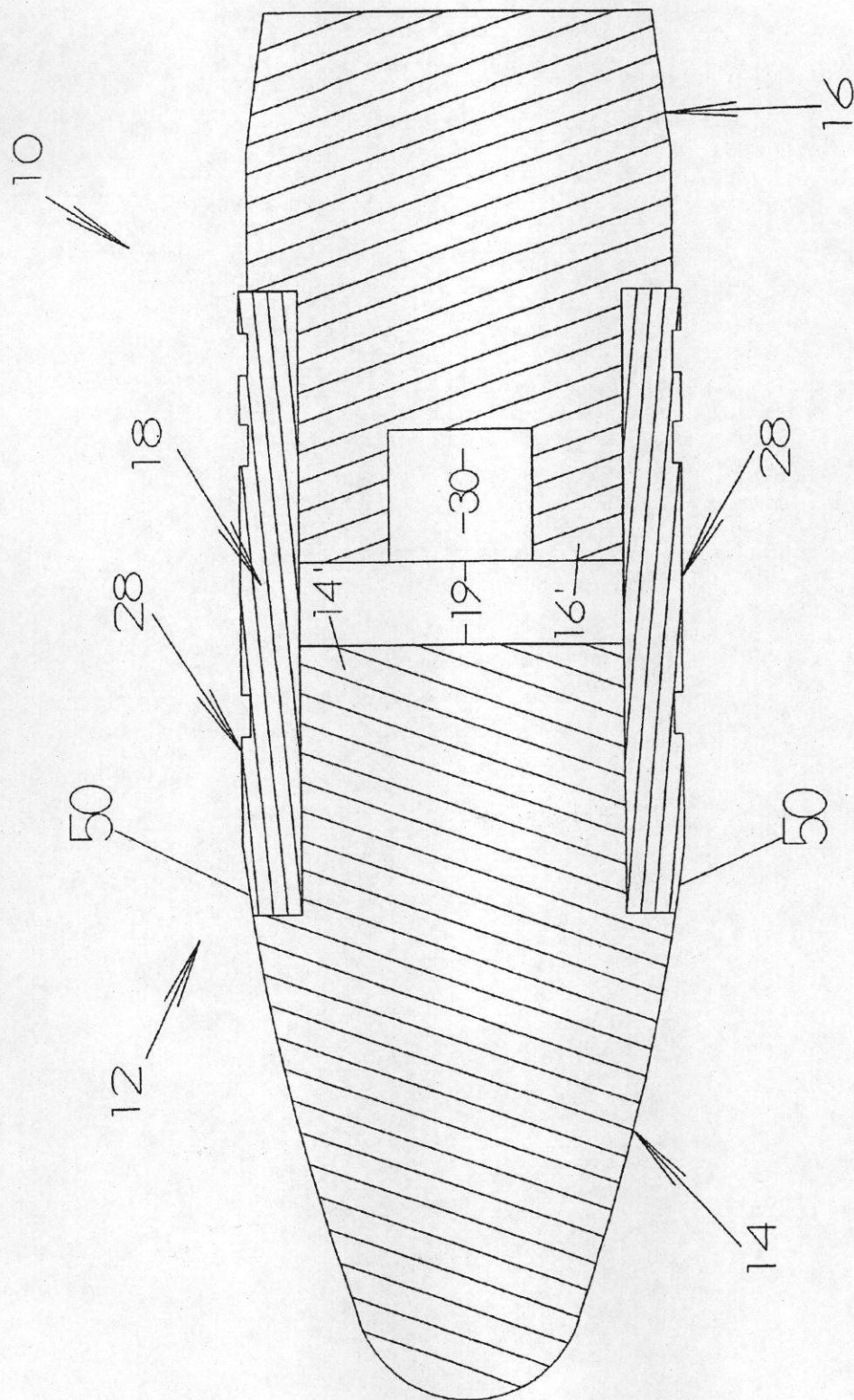


FIGURE 1B



[illegible]



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FIGURE 2

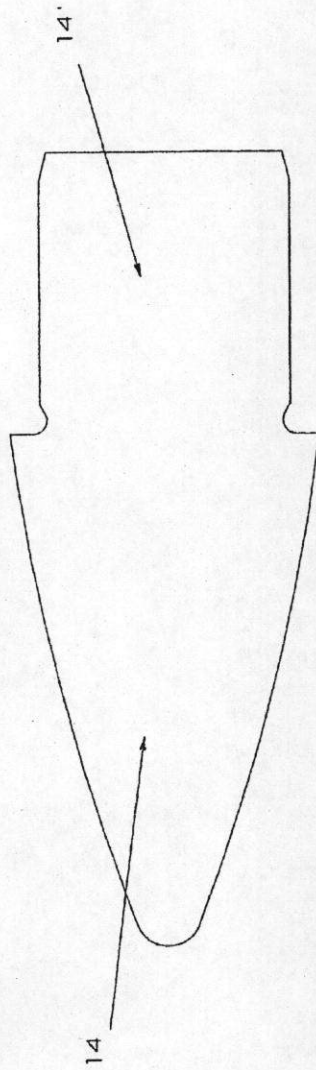


FIGURE 3

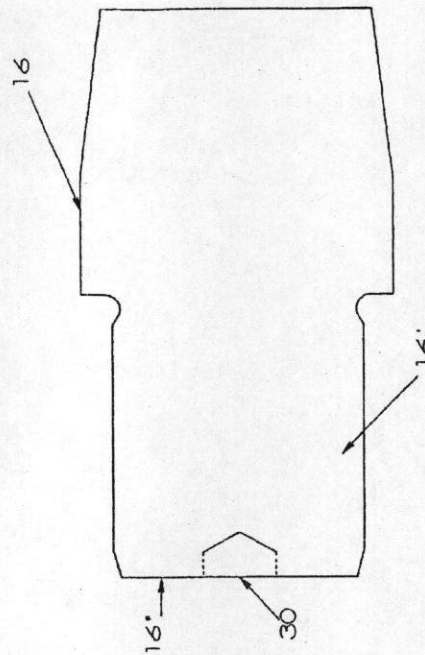
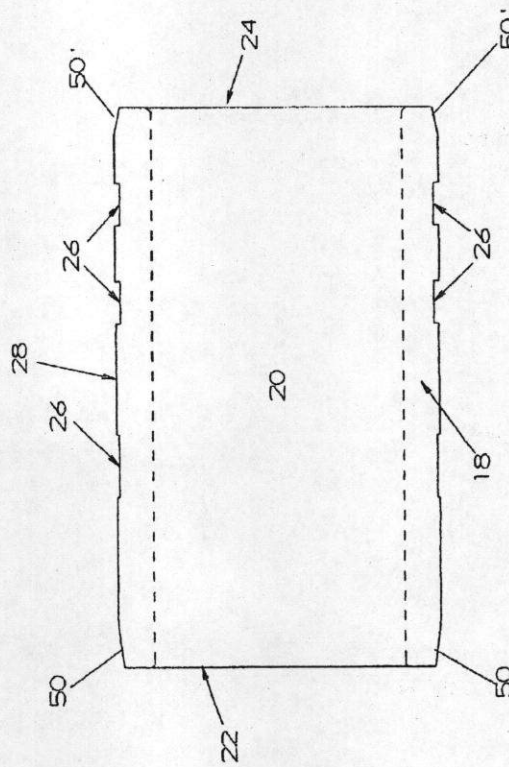


FIGURE 4



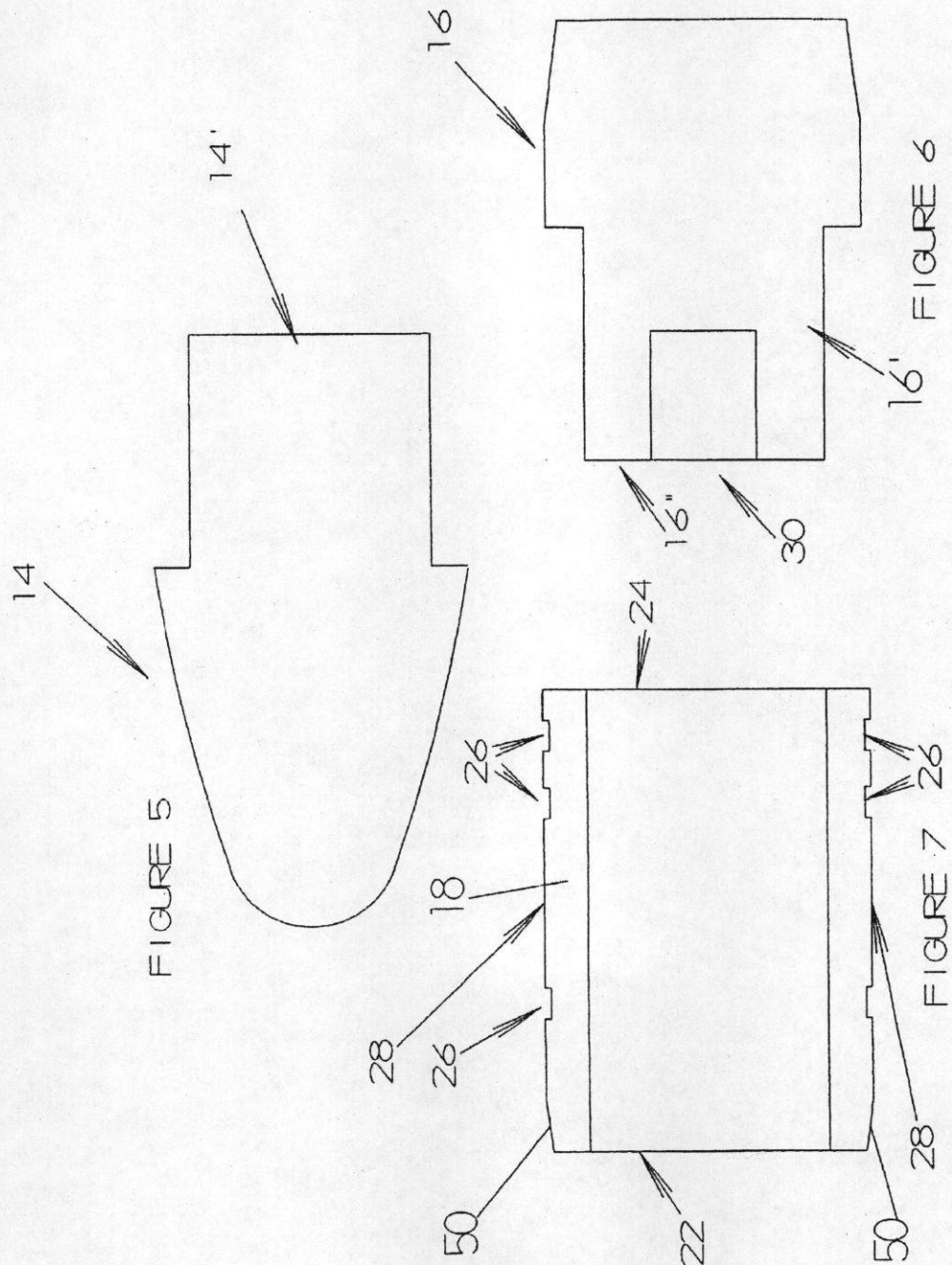


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**FIREARMS PROJECTILE****BACKGROUND OF THE INVENTION****1. Field of the Invention**

This invention is directed to projectile structured to be discharged from a firearm and comprising separable nose and tail portions and an interconnecting interface. The interface is structured to facilitate concurrent, synchronization rotation of the nose portion, the interface and the tail portion as the projectile travels through the bore of the firearm and as it exits therefrom. The interface is dimensioned and disposed to define a reduced contact area of the projectile body with the rifling or interior surface of the barrel of the firearm.

**2. Description of the Related Art**

The latter part of the twentieth century brought environmental concerns into the ammunition field. The resulting changes included the United States military reducing the use of copper jacketed lead projectiles in an effort to reduce lead contamination. In addition, Oak Ridge National Laboratory was given the task of finding a lead free alternative to be used in the structuring and design of firearm projectiles. This research led to the development of a tungsten/tin compound known in the industry as "Green Bullet". Practical application and formation of this material involves tungsten powder bound together with tin or nylon and inserted into a jacket in place of the formerly used lead material. The performance characteristics of the resulting projectiles are equivalent to conventional lead filled projectiles but involve a significantly higher cost of production.

Accordingly, with the intended elimination or reduction in the use of lead in firearm projectiles there is a significant need in the firearm industry for a projectile capable of being tailored to assume various densities while distinguishing the weight of the projectile from its size. Currently, NATO 5.56 mm M855(SS109) projectiles comprise a steel/lead core placed in a copper jacket which weighs 62 grains. Ideally, an improved projectile could be proposed and developed having the same physical dimensions but having an increased weight, of for example 107 grains or a 72 percent weight increase. In order to achieve the same weight utilizing the conventional jacketed lead projectile a significant change in the length of the projectile would have to be assumed. This additional length would decrease the space available for gun powder thereby reducing the propelling charge of the projectile. Moreover, the increased length in order to accomplish the desired increase in weight would also require a different rifling twist rate on the interior barrel surface of the firearm.

Accordingly, a desired and proposed improvement in projectiles would comprise an increase in the weight of the projectile with no decrease in case volume. Moreover, this would result in increased terminal energy which translates into energy delivered to the target upon impact of the projectile. More specifically, greater density means improved ballistic coefficient to the extent that an improved and proposed projectile would lose less of its initial velocity at long range target distances than jacketed lead or steel projectiles. As a result, an improved projectile would have increased accuracy as well as greater terminal energy and penetration characteristics.

Furthermore, an increased need in the firearms industry for an improved projectile would preferably involve a proposal which eliminates the use of a jacketed projectile. In contrast, a proposed projectile would have an exterior surface which engages the rifling along a reduced contact area as compared to conventional projectiles. Additional improvements may involve the use of a copper alloy in forming portions of the

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exterior surface of the projectile body. In the alternative, the exterior surface defining the contact area of the improved projectile could be made from other alloys or polymers. Therefore the design and structuring of a proposed projectile would result in a contact area thereon which would be significantly less than a traditional jacketed lead bullet. Accordingly, by reducing the contact area of the projectile, barrel friction would be significantly reduced. In turn, heat buildup would be reduced and the barrel performance during sustained fire of such projectiles would be greatly improved. Other advantages would involve the increase in barrel life of the firearm and reduced fouling. Additional performance characteristics of a proposed and improved projectile would provide significantly greater penetration when impacting hard targets such as armor, glass, vehicles, etc. than conventional jacketed lead projectiles. Additional physical characteristics of a proposed projectile would provide capabilities of delivering supplemental payloads while offering controlled fragmentation against soft targets (humans/animals).

Finally, the practical application and manufacturing associated with such a proposed preferred projectile in quantities adequate for the military and law enforcement needs would be significantly reduced due to the relative simplicity of the non-jacketed projectile, as proposed. Moreover, projectiles could be produced at a modest cost, especially as compared to the "Green Bullet" technology as briefly described above, while enabling the projectiles to be produced in all calibers generally ranging from .17 through 50 BMG while significantly improving the performance of all small caliber weapons systems.

**SUMMARY OF THE INVENTION**

The present invention is directed to a projectile structured to be discharged from a firearm and designed to overcome the disadvantages and problems associated with conventional firearm projectiles such as, but not limited to lead or steel jacketed projectiles.

Moreover, the projectile of the present invention eliminates the use of lead and the provision of an outer jacket. As such, specified portions of the exterior surface of the body of the projectile engage the rifling along an exterior surface area disposed and dimensioned to significantly reduce the area of contact of the projectile body with the rifling or interior surface of the barrel of the firearm. By reducing the contact area of the projectile, barrel friction is reduced thereby reducing heat buildup and improving barrel performance during sustained fire of the firearms. An additional benefit is the increase in barrel life and the reduction of fouling.

More specifically, the projectile of the present invention in one or more of the preferred embodiments to be described in greater detail hereinafter, comprises a body including a nose portion and a tail portion. In addition, the projectile body further includes an interface disposed intermediate opposite ends of the body and structured to interconnect the nose and tail portions in a manner which provides controlled fragmentation of the projectile body, especially when the projectile strikes a soft target. The disposition and structuring of the interface results in the positioning of an outer surface thereof so as to define the primary contact area between the body of the projectile and the rifling or interior surface of the barrel.

As set forth above, controlled fragmentation of the projectile, when striking at least a first predetermined target (soft material), is accomplished by the nose and tail portions of the projectile body being separable from one another. Such separation is facilitated by one or both of the nose and tail portions being removably attached or connected to the interface. Also,



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as will be explained in greater detail hereinafter, the interface is structured to rupture in certain instances such as, but not limited to, when the projectile strikes a predetermined target such as a human or animal target. More specifically, when the projectile body of the present invention penetrates a soft material target it begins to "tumble" typically resulting in the interface rupturing. As a result, the nose and tail portions separate from one another by means of the rupturing of the interface and/or the detachment of one or both of the nose and tail portions from the interface which may be facilitated by the rupturing of the interface.

Additional structural features of the projectile include at least one of the nose or tail portions, and preferably the tail portion, structured to contain and carry a supplemental payload for delivery to the target. Such supplemental payload may include, but are not limited to, Warfarin, Coumadin, Heparin, Lovenox and Fragmin, all of which are anti-coagulants. In addition, the supplement payload may include Isosorbide Dinitrate, Isosorbide Mononitrate and Hydralazine, all of which may be classified under the category of vasodilators. Additionally, the supplemental payload may include various isotopes for tracking such as RFI tags, SPLAT (Sticky Polymer Lethal Agent Tag), Smartdust, or other chemical agents. Therefore, the controlled fragmentation generally defined herein as a separation of the nose and tail portions of the projectile body will expose the targeted person, animal, etc, to the chemical agent defining the delivered payload, thereby resulting in the intended effect on the target.

The versatility of the manufacturing and performance characteristics of the projectile of the various embodiments of the present invention may also be attributed to the formation of the various nose and tail portions from high density metal matrix composites, metals or ceramics, wherein the interconnecting interface is preferably, but not necessarily, formed from a copper alloy. As a result, the projectile of the present invention may be produced on a mass scale using materials and manufacturing equipment currently available and known in the projectile production industry. Accordingly, production can occur in a relatively short period of time from initial startup and at a relatively modest expense, especially when compared to customized projectiles currently under investigation. Finally, the subject projectile can be produced in virtually all calibers from .17 through 50 BMG and can significantly improve the performance of all small caliber weapons systems with which it is used.

These and other objects, features and advantages of the present invention will become clearer when the drawings as well as the detailed description are taken into consideration.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a sectional view of one preferred embodiment of the projectile of the present invention.

FIG. 1A is a sectional view of yet another preferred embodiment of the projectile of the present invention.

FIG. 1B is a sectional view of yet another preferred embodiment of the projectile of the present invention.

FIG. 1C is a sectional view of yet another preferred embodiment of the projectile of the present invention.

FIG. 2 is a side view of a head portion of the embodiment of the projectile of FIG. 1.

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FIG. 3 is a side view of another embodiment of a tail portion of the projectile which could be incorporated in the embodiment of FIG. 1.

FIG. 4 is a side view in detail of an interface component of the preferred embodiment of FIG. 1.

FIG. 5 is a side view of a head portion of the projectile of the embodiment of FIGS. 1B and 1C.

FIG. 6 is a side view of another embodiment of the tail portion of the projectile similar to the embodiment of FIGS. 1B and 1C.

FIG. 7 is a sectional view in detail of yet another embodiment of an interface of the projectile as represented in FIGS. 1B and 1C.

Like reference numerals refer to like parts throughout the several views of the drawings.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in the accompanying Figures, the present invention is directed to a projectile generally indicated as 10 of the type structured to be fired from a firearm. More specifically, the projectile 10 includes a body, generally indicated as 12, which comprises a nose portion 14 and a tail portion 16 shown in detail in FIGS. 2, 3, 5, and 6 respectively. In addition, the projectile body 12 includes an interface 18, shown in detail in FIGS. 4 and 7, disposed intermediate the opposite ends of the projectile body 12 in interconnecting relation to the head portion 14 and the tail portion 16 as demonstrated in FIG. 1.

Structural features associated with one or more preferred embodiments of the projectile 10 include the nose and tail portions 14 and 16 respectively, formed of high density metal matrix composites, metals, alloys, or ceramics. More specifically, the nose and tail portions 14 and 16 can each be formed from a material which contains one or more of the following: aluminum, antimony, beryllium, bismuth, boron carbide, brass, bronze, chromium, cobalt, copper, gold, iridium, iron, lead, magnesium, mercury, molybdenum, nickel, palladium, platinum, rhodium, silicon carbide, silver, steel, tantalum, tellurium, tin, titanium, tungsten, tungsten carbide, depleted uranium, zinc and zirconium.

The interface 18 may be made from a copper alloy similar to gilding metal. However, material from which the interface 18 is formed may vary to include other appropriate alloys, polymers, etc, including materials which contain one or more of the following: aluminum, bronze, brass, chromium, copper, epoxy, fiberglass, Kevlar, gold, graphite, iron, lead, magnesium, mercury, molybdenum, nickel, nylon, palladium, polycarbonate, polyester, polyethylene, polystyrene, polyamide, poly vinyl chloride, polyurethane, phenolic, thermoplastic polymer, thermoset polymer, rhodium, rubber, silicon, silver, steel, tantalum, tellurium, tin, titanium, Teflon, Torlon, Ultem, zinc, zirconium. As represented in both FIGS. 1 and 4, the interface 18 includes an at least partially hollow interior 20 and an open ended construction defined by at least one but preferably both oppositely disposed open ends 22 and 24. Other structural features of the interface 18 include an at least partially irregular exterior surface 28 including a plurality of recessed, spaced apart, annular grooves 26 integrally formed in the exterior surface 28.

A review of FIGS. 1, 1A, 1B and 1C clearly indicates that the interface 18, in each of the various preferred embodiments of the present invention, is disposed in interconnecting relation to both the nose portion 14 and the tail portion 16. As such, the open ended construction, comprising oppositely disposed open ends 22 and 24, as well as the at least partially hollow interior 20 are cooperatively dimensioned and config-



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ured to receive the connecting trailing section 14' of the nose portion 14 and the leading section 16' of the tail portion 16. Insertion of the nose and tail portions 14 and 16 and the fixed or removable connection to the interface 18 can be accomplished by a friction, press fitted securement as the connecting portions 14' and 16' pass into the at least partially hollow interior 20 through the open ends 24 and 22 of the interface 18.

Moreover, the press fitted insertion of the nose portion 14 and the tail portion 16 into the interface 18 may be structured to define either a fixed connection or a removable connection. With a firm, secure but removable connection, a separation of the nose and tail portions 14 and 16 from one another and possibly from the interface 18 is facilitated when the projectile body 12 strikes at least one predetermined category of targets such as, but not necessarily limited to, a soft target. More specifically, when the projectile body 12 penetrates a soft target (human, animal, etc.) it begins to "tumble". Due at least in part to the forces exerted on the projectile body 12 and the structural features of the interface 18 during such tumbling, the interface 18 will separate or rupture.

As set forth above, the connection between the interface 18 and the nose and tail portions 14 and 16 may be fixed. As such, the nose and tail portions 14 and 16 separate from one another by the fact that the interface 18 ruptures upon striking the target and/or during the tumbling procedure. Accordingly, the structural and operational features of the projectile 10 provide a controlled fragmentation when the projectile body 12 strikes at least a predetermined target, such as a soft material target including a human, animal, etc. At the same time, the projectile 10 provides significantly greater penetration against hard targets than jacketed lead/steel projectiles as conventionally structured. Yet another feature associated with the various preferred embodiments of the present invention is the existence of a firm, secure interconnection between the interface 18 and each of the nose and tail portions 14 and 16 respectively. Such a secure connection or attachment between the nose portion 14, the interface 18 and the tail portion 16 will assure that all these components rotate with one another as the projectile passes through the barrel and thereafter as the projectile exits the barrel. Such rotation is further defined by the nose portion 14, interface 18 and tail portion 16 all rotating in a common direction and in a synchronized manner such that rotation of all portions of the projectile rotate while being fixedly secured to one another such that the rotation of the projectile is "synchronized". Moreover, any movement or "slippage" of the nose portion 14, interface 18 and tail portion 16 relative to one another during the flight of the projectile is prevented as the projectile rotates during travel through the barrel and during flight thereafter.

It should be noted that distinguishing features of the various preferred embodiments as represented in FIGS. 1 through 7 comprises a different configuration and/or dimension of the nose portion 14, tail portion 16 and interface 18. Further, as can be seen throughout a representation of the structural and dimensional modifications of the various preferred embodiments of the present invention, the nose and tail portions have a combined length equal to one hundred percent of the length of the projectile as clearly demonstrated in FIGS. 1 and 1B. However, as represented in FIGS. 1A and 1C, the embodiments disclosed therein include a predetermined spacing as at 19 existing between the corresponding ends or faces of the trailing section 14' of the nose portion 14 and the leading section 16' of the tail portion 16. As such, the combined length of the nose and tail portions may be eighty to ninety percent or greater than the total length of the projectile with the provision of the spacing 19. Further, in at least one additional

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preferred embodiment, the trailing section 14' of the nose portion 14 and the leading section 16' of the tail portion 16 are spaced apart a distance of 0.060 inches or less when the projectile is completely assembled in the form demonstrated in FIGS. 1A and 1C. As is also clearly represented, FIGS. 1 and 1B represent different preferred embodiments of the present invention, wherein correspondingly disposed ends or faces of the trailing portion 14' and the leading portion 16' are disposed in confronting engagement with one another on the interior of the interface thereby eliminating the presence of the spacing 19 as represented in FIGS. 1A and 1C.

Additional dimensional features directed to the structure of the projectile 10, the body 12 and its various components comprise the nose portion 14 having a greater overall length than that of the interface 18. Further, the overall length of the tail portion is equal to or greater than fifty percent of the overall length of the interface 18. Further, the length of the trailing section 14' and the leading section 16' which are disposed and connected on the interior of the interface 18 each represent between thirty percent and seventy percent of the overall length of the interface 18. Comparatively, in at least one embodiment, the length of the interface 18 comprises between thirty to seventy percent of the overall length of the projectile 10.

As with the structural dimensions of the body 12 and the various components associated therewith, the density of the projectile may vary such that average total density of the nose portion 14, tail portion 16 and interface 18 collectively comprise a density that is greater than 11.5 grams per cubic centimeter. A lighter version of the same projectile may be defined, wherein an average total density of the nose portion 14, tail portion and interface 18 collectively include a density greater than 7 grams per cubic centimeter.

Another operative feature of at least additional preferred embodiments of the projectile 10, such as represented in Figures comprises the provision of a recess or cavity generally indicated as 30 in at least one of the nose and tail portions 14 and 16 and preferably in the tail portion 16. In a most preferred embodiment, the recess or cavity 30 is formed adjacent or contiguous to the front or end face 16" of the leading section 16' of the tail portion 16 and is dimensioned and configured to contain a supplemental payload. The supplemental payload may comprise any chemical or other material agent specifically intended to affect the target struck by the projectile body 12. Moreover, possible payloads include anti-coagulants such as, but not limited to, Warfarin, Coumadin, Heparin, Lovenox and Fragmin. In addition, the chemical agents defining the supplemental payload may include vasodilators including Isosorbide Dinitrate, Isosorbide Mononitrate and Hydralazine. Also the payload may comprise various isotopes for tracking a target including RFI tags, SPLAT (Sticky Polymer Lethal Agent Tag), Smartdust and a variety of other materials. Structuring of the tail portion 16 to include the supplemental payload in cooperation with the structuring of the other components with the projectile body 12 which facilitates the aforementioned controlled fragmentation facilitate the delivery of the supplemental payload to the intended target. As should be apparent, a separation of the nose portion 14 and the tail portion 16 by detachment of the interface 18 or the rupturing thereof will expose the supplemental payload to the target penetrated by the projectile body 12.

Also, it is emphasized that the projectile body 12 is not jacketed as in conventional copper jacketed projectiles. However, an additional operative feature of the interface 18 in accord with its disposition and structure is directed to the exterior surface 28 thereof which defines a reduced, primary



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contact and/or substantially exclusive contact area between the projectile body 12 and the rifling or interior surface of the barrel of the firearm from which it is discharged. The significantly reduced area of contact between the projectile body and the rifling of the barrel, than that of a traditional jacketed bullet, results in significantly reduced bore friction and heat buildup. As a result, barrel performance is improved during sustained fire of the firearm thereby increasing the barrel life and reducing the occurrence of fouling.

Yet another feature of one or more of the preferred embodiments of the present invention includes the interface 18 having a tapered or other appropriate configuration generally indicated as 50 located at least at one end thereof. As such, the tapered configuration 50 facilitates or aids in the aerodynamic configuration of the entire projectile 10 thereby facilitating the flight of the projectile 10 after it leaves the barrel of the firearm. Further, in additional preferred embodiments of the present invention such as represented in FIGS. 1, 1A and 4, the interface 18 includes both end portions as at 50 and 50' having the aforementioned tapered configuration. Such tapered configuration not only facilitates the aerodynamic flight of the projectile 10, but further serves to at least partially enclose and facilitate gripping engagement of the interface 18 with the nose portion 14 and tail portion 16 as the trailing section 14' and the leading section 16' are connected to and extend within the interior of the interface 18.

Reference is also directed to the embodiment of FIGS. 1 and 1A wherein secure and fixed engagement between the interface 18 and the nose portion 14 and tail portion 16 is facilitated by the inwardly directed, somewhat interior peripheral rims 52 and 52' located at opposite ends of the interface 18. The peripheral rims 52 and 52' are used to maintain a fixed secure engagement between the interface 18 and the nose and tail portions 14 and 16. As set forth above, such fixed engagement aids in the concurrent, synchronized rotation of the nose portion 14, the interface 18 and the tail portion 16 as the projectile 10 travels through the bore of the firearm and as it exits therefrom.

Finally, structural and operative features of the projectile 10, including the cooperative components of the nose portion 14, tail portion 16 and interface 18, overcome many of the disadvantages and problems normally associated with conventional firearm projectiles through the provision of a non-jacketed structure and the elimination of lead. Moreover, the versatility of the projectile of the present invention is demonstrated by providing controlled fragmentation against soft targets and the delivery of a variety of supplemental payloads.

Since many modifications, variations and changes in detail can be made to the described preferred embodiment of the invention, it is intended that all matters in the foregoing description and shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense. Thus, the scope of the invention should be determined by the appended claims and their legal equivalents.

Now that the invention has been described,

What is claimed is:

1. A projectile structured to be discharged from a firearm, said projectile comprising:

a body including a nose portion and a tail portion,

said body further including an interface portion disposed in interconnecting relation to said nose and tail portions, said interface portion structured to provide controlled rupturing of said interface portion responsive to said projectile striking a predetermined target,

said interface portion disposed and dimensioned to define a reduced area of contact of said body with the rifling of the firearm, said interface portion maintaining the nose

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portion and tail portion in synchronized rotation while being fixedly secured to one another by said interface portion whereby upon said projectile striking said predetermined target said interface portion ruptures thereby separating said nose and tail portions of said projectile.

2. A projectile as recited in claim 1 wherein at least one of said nose and tail portions are removably connected to and separable from said interface upon said body striking a predetermined target.

3. A projectile as recited in claim 2 wherein each of said nose and tail portions are separable from said interface upon said body striking a predetermined target.

4. A projectile as recited in claim 3 wherein said interface is structured to rupture upon said body striking a predetermined target.

5. A projectile as recited in claim 1 wherein said nose and tail portions and said interface are cooperatively structured to separate said nose and tail portions from one another upon said body striking a predetermined target.

6. A projectile as recited in claim 5 wherein said interface is structured to rupture upon said body striking a predetermined target.

7. A projectile as recited in claim 1 wherein said interface includes an open ended construction dimensioned and configured to facilitate insertion of at least one of said nose and tail portions on an interior of said interface.

8. A projectile as recited in claim 1 wherein said interface comprises an at least partially hollow interior dimensioned and configured to receive at least one of said nose or tail portions therein.

9. A projectile as recited in claim 8 wherein at least one of said nose and tail portions is separable from said interface.

10. A projectile as recited in claim 8 wherein said hollow interior is dimensioned and configured to receive both of said nose and tail portions therein.

11. A projectile as recited in claim 10 wherein both said nose and tail portions are separable from said interface.

12. A projectile as recited in claim 10 wherein said interface comprises substantially oppositely disposed open ends each dimensioned to receive a different one of said nose and tail portions into said hollow interior of said interface.

13. A projectile as recited in claim 12 wherein said nose and tail portions are separable from one another.

14. A projectile as recited in claim 13 wherein said interface is structured to rupture upon said body striking a predetermined target.

15. A projectile as recited in claim 14 wherein at least one of said nose and tail portions comprises a supplemental payload connected thereto and carried thereby to a target.

16. A projectile as recited in claim 15 wherein said at least one of said nose or tail portions is structured to receive the supplemental payload at least partially on an interior thereof.

17. A projectile as recited in claim 1 wherein said nose and tail portions have a combined length equal to 100% of the projectile length.

18. A projectile as recited in claim 1 wherein said nose and tail portions have a combined length which is equal to or greater than 90% of the projectile length,

19. A projectile as recited in claim 1 wherein said nose and tail portions have a combined length which is equal to or greater than 80% of the projectile length.

20. A projectile as recited in claim 1 wherein said interface has an overall length equal to generally about 30% to 70% of the overall length of the projectile.

21. A projectile as recited in claim 1 wherein said interface has an overall length equal to or less than 50% of the overall projectile length.



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22. A projectile as recited in claim 1 wherein said nose and tail portions include correspondingly positioned ends disposed in confronting engagement with one another on an interior of said interface.

23. A projectile as recited in claim 1 wherein said nose and tail portions include correspondingly positioned ends disposed a predetermined spaced distance from one another within said interface, said predetermined spaced distance being less than 0.060".

24. A projectile as recited in claim 1 wherein the overall length of said nose portion is greater than the overall length of said interface.

25. A projectile as recited in claim 1 wherein the overall length of said tail portion is equal to or greater than 50% of the overall length of said interface.

26. A projectile as recited in claim 1 wherein said nose portion includes a trailing section and said tail portion includes a leading section, each of said trailing and leading sections connected to said interface on an interior thereof, an interior length of each of said trailing and leading sections comprising between 30% to 70% of the overall length of said interface.

27. A projectile as recited in claim 1 said nose portion, said tail portion and said interface collectively comprise an average total density of greater than 11.5 g/cc.

28. A projectile as recited in claim 1 said nose portion, said tail portion and said interface collectively comprise an average total density greater than 7 g/cc.

29. A projectile as recited in claim 1 wherein said nose portion is formed from a material selected from the group consisting of: aluminum, antimony, beryllium, bismuth, boron carbide, brass, bronze, chromium, cobalt, copper, gold, iridium, iron, lead, magnesium, mercury, molybdenum, nickel, palladium, platinum, rhodium, silicon carbide, silver, steel, tantalum, tellurium, tin, titanium, tungsten, tungsten carbide, depleted uranium, zinc and zirconium.

30. A projectile as recited in claim 1 wherein said tail portion is formed from a material selected from the group consisting of: aluminum, antimony, beryllium, bismuth, boron carbide, brass, bronze, chromium, cobalt, copper, gold, iridium, iron, lead, magnesium, mercury, molybdenum, nickel, palladium, platinum, rhodium, silicon carbide, silver, steel, tantalum, tellurium, tin, titanium, tungsten, tungsten carbide, depleted uranium, zinc and zirconium.

31. A projectile as recited in claim 1 wherein said interface is formed from a material selected from the group consisting of: aluminum, bronze, brass, chromium, copper, epoxy, fiberglass, Kevlar, gold, graphite, iron, lead, magnesium, mercury, molybdenum, nickel, nylon, palladium, polycarbonate, polyester, polyethylene, polystyrene, polyamide, poly vinyl chloride, polyurethane, phenolic, thermoplastic polymer, thermoset polymer, rhodium, rubber, silicon, silver, steel, tantalum, tellurium, tin, titanium, Teflon, Torlon, Ultem, zinc, zirconium.

32. A projectile structured to be discharged from a firearm, said projectile comprising:

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a body including a nose portion and tail portion, said body further including an interface portion disposed intermediate opposite ends of said body in interconnecting relation to said nose and tail portions, said interface portion structured to provide controlled rupturing of said interface portion responsive to said projectile striking a predetermined target, said interface portion maintaining said nose portion and tail portion in synchronized rotation while being fixedly secured to one another by said interface portion whereby upon said projectile striking said predetermined target said interface portion ruptures thereby separating said nose and tail portions of the projectile; and

said exterior surface of said interface portion disposed and structured to define a primary area of contact of said body with an interior barrel surface of said firearm.

33. A projectile as recited in claim 32 wherein said nose portion and said tail portion are at least partially secured within said interface in predetermined spaced relation to one another,

34. A projectile as recited in claim 33 wherein said nose portion includes a trailing section and said tail portion includes a leading section; said trailing and leading sections are fixedly connected to said interface on the interior thereof.

35. A projectile as recited in claim 34 wherein said leading and trailing sections are fixedly secured to said interface such that said nose portion, said tail portion and said interface concurrently rotate with one another in a common direction and synchronized manner as the projectile travels through and beyond a barrel of the firearm.

36. A projectile as recited in claim 35 wherein said trailing and leading sections are disposed in confronting relation to one another on an interior of said interface.

37. A projectile as recited in claim 35 wherein said trailing section and said leading section are disposed in spaced relation to one another on an interior of said interface.

38. A projectile as recited in claim 32 wherein said interface comprises a greater outside diameter along at least a portion of a length thereof than either said nose portion or said tail portion.

39. A projectile as recited in claim 38 wherein said interface comprises a tapered portion disposed and dimensioned to facilitate isolation of at least said nose portion from contact with an internal surface of the barrel.

40. A projectile as recited in claim 32 wherein said interface comprises a tapered portion disposed and dimensioned to facilitate aerodynamic flight of said body.

41. A projectile as recited in claim 32 wherein said interface is connected to said nose portion and disposed and structured to isolate said nose portion from contact with an internal surface of the barrel of the firearm.

42. A projectile as recited in claim 32 wherein said exterior surface of said interface comprises a substantially irregular configuration.

\* \* \* \* \*



B



## Bilateral Non-Disclosure

## Confidential and Proprietary

This agreement ("Agreement") is entered into as of the date last written below by and between PJ Marx having as his principal place of business 1880 University Parkway, Sarasota, FL 34243, ("PJM") and the United States Government, Department of Defense, having as its principal place of business FT Derring ("USDOD") hereinafter known as the "Parties."

Whereas, it is the mutual desire of the Parties to disclose certain Confidential Information to each other, and

Whereas, the Parties recognize that careful protection and non-disclosure by the party receiving ("Receiving Party") Confidential Information from the party disclosing ("Disclosing Party") such Confidential Information is of vital importance to the prosperity of the Parties.

Therefore, in consideration of the promises made herein, the Parties agree to disclose and receive certain Confidential Information only under the following terms and conditions.

### 1. Confidential Information

1.1. **Definition.** As used herein, Confidential Information shall mean any information and data of a confidential or proprietary nature, which is disclosed by Disclosing Party to Receiving Party. Such Confidential Information includes, but is not limited to, proprietary technical, financial, personnel, marketing, pricing, sales and/or commercial information with respect to ammunition, ballistic materials, development, operation, performance, cost, know-how, business process and marketing of ammunition, and other technology relating the defense industry, as well as ideas, concepts, designs and inventions, and all record bearing media containing or disclosing such information and techniques which are disclosed pursuant to this Agreement.

1.2. **Prior Knowledge.** The Receiving Party acknowledges no prior knowledge of the confidential information being disclosed with respect to the commercial and technical viability of a novel approach to creating non-lead composite projectiles.

1.3. **Purpose.** The purpose of the disclosure of Confidential Information is to enable the Parties to advance their efforts in the current or potential business of marketing defense related products. Receiving Party Shall use the Confidential Information for this purpose only. Either PJM or USDOD may be a Receiving Party under the terms hereof.

1.4. **Designation.** The disclosing Party shall designate all Confidential Information as such. All tangible or written information, whether in hard or soft copy, shall be so designated in writing at the time disclosure. If the Confidential Information is disclosed orally, it shall be prefaced as Confidential Information, or the entire meeting wherein such information is disclosed shall be described in advance as containing Confidential Information. All verbal information shall be so designated verbally at the time of disclosure. Information that is not designated as Confidential Information in accordance with the terms of this section shall not be considered Confidential Information.

1.5. **Ownership.** The Confidential Information shall be considered valuable trade secrets owned by the Disclosing Party. The Disclosing Party retains all right, title and interest in the Confidential Information.

1.6. **No Warranties.** The Disclosing Party assumes no responsibility for any loss or damages to the Receiving Party, its customers or any third parties caused by or arising from the Confidential Information. The Disclosing Party makes no warranties of any kind, whether expressed or implied, including but not limited to, any implied warranty of merchantability of the Confidential Information or fitness of the Confidential Information for a particular purpose.



## **2. Nondisclosure**

**2.1. Use of Confidential Information.** The receiving Party may only use the Confidential Information for the purposes stated above. The Receiving Party recognizes that this Agreement imposes an affirmative duty to hold such information in confidence and protect it from dissemination to and use by an unauthorized person. In the absence of the Disclosing Party's prior written consent, the Receiving Party shall not reproduce nor disclose the Confidential Information to any third party.

**2.2. Further Responsibility.** The Receiving Party agrees to use the same degree of care to protect the confidentiality of the Confidential Information, as it would to protect its own trade secrets, but in no case less than a reasonable degree of care. Receiving Party will grant access to the Confidential Information only to its employees or consultants who have a clear need to know for purposes of this Agreement and shall advise those employees or consultants of the existence and terms of this Agreement and of the obligations of confidentiality herein. Each Party shall be responsible for the breach of the terms of this Agreement by such Party or its employees.

**2.3. Exceptions.** The foregoing notwithstanding, no information shall be considered Confidential Information if such information (a) was in the Receiving Party's possession before its execution of this Agreement, as established by Receiving Party's records; (b) is or becomes a matter of public knowledge through no fault or without violation of any duty of confidentiality of the Receiving Party, or (c) is rightfully received by the Receiving Party from a third party without a duty of confidentiality. Neither Party shall be liable for disclosure of Confidential Information if disclosure was in response to a valid order of a court or authorized agency of government, provided that prior written notice first be given to the Disclosing Party so that a protective order of relief, if appropriate, may be sought by the Disclosing Party.

**2.4. Remedies.** The Receiving Party agrees that unauthorized disclosure of the Confidential Information may irreparably damage the Disclosing Party. Such damages cannot be fully compensated by money damages. Therefore, the Parties agree that relief for such disclosure may be sought in equity, for which no bond will be required.

## **3. General.**

**3.1. Term and Termination.** Subject to Subsection 2.4. *infra.*, the Receiving Party shall maintain the Confidential Information in confidence in accordance with the terms of this Agreement for a period of three (3) years from the date of receipt of the Confidential Information, excepting, however, that any Receiving Party receiving any information that is subsequently deemed "Classified" by the United States Government shall upon notification by the Disclosing Party hold this Confidential Information in strict confidence in perpetuity. Either party may terminate this Agreement upon written notice to the other. Duties of non-disclosure as set forth in Section 2 of this Agreement survive any termination of the Agreement. Upon the expiration or earlier termination of this Agreement, or upon request by the Disclosing Party, the Receiving Party will cease to use the Confidential Information and will deliver to the Disclosing Party all documents, papers, drawings, tabulations, reports, documentation and other record bearing media obtained in the course of this Agreement.

**3.2. No Further Rights.** No license to the Receiving Party under any trademark, patent or copyright or applications for same which are now or may thereafter be obtained by such Receiving Party, is either granted or implied by the conveying of Confidential Information to the Receiving Party.

**3.3. No Conflicts.** Each of the Parties represents and warrants that its actions with respect to this Agreement do not conflict with any prior obligations to any third party. The Parties further agree not to disclose or to use on behalf of the other party any Confidential Information belonging to any third party unless sufficient written authorization from the third party is provided.

**3.4 Securities Issues.** If the information disclosed hereunder is material non-public information about the Disclosing Party, then the Receiving Party agrees not to trade in the securities of the Disclosing Party or in the securities of any appropriate and relevant third party until such time as no violation of the applicable laws would result from such securities trading.



**3.5 Non-Circumvention.** During the term of this Agreement and for a period of two (2) years thereafter, the Parties agree not to engage in agreements to receive, nor to solicit or attempt to solicit for itself or any third party, the services of any vendor or subcontractor of the other party, or of its parent or affiliate companies, without prior written consent of the other Party. Violation of this provision shall, in addition to other relief, entitle the offended Party to assert liquidated damages against the offending party equal to one hundred fifty (150) percent of the fees that would be paid over a one-year period by the offending Party to the vendor or subcontractor for solicited services, regardless of whether such services were rendered or such fees paid.

**3.6. General Terms.** Neither Party may sell, transfer, or assign this Agreement except to entities completely controlling or controlled by that Party or to entities acquiring all or substantially all of its assets, without the prior written consent of the other, which consent shall not be unreasonably withheld. Any act in derogation of the foregoing shall be null and void; provided, however, that any such assignment shall not relieve the assigning Party of its obligations hereunder. PJM shall require written notice, however, in the event of any Assignment.

**3.7. Benefit/Waiver.** This agreement shall be binding upon and inure to the benefit of the Parties and their rightful successors and assigns. The waiver or failure of either Party to exercise in any respect any right provided for in this Agreement shall not be deemed a waiver of any further right under this Agreement.

**3.8. Severability/Amendments.** If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, it shall be enforced to the extent legally permissible and as necessary to reflect the intent of the Parties and shall not affect the remaining provisions of this Agreement, which shall remain in full force and effect. This Agreement may only be amended by a writing executed by both Parties. This Agreement is binding upon each Party and their affiliates.

**3.9 Governing Law.** This Agreement shall be deemed to be a contract made under the laws of the State of Florida and shall be governed by the laws thereof as if between residents of Florida. This Agreement represents the entire agreement between the Parties with respect to the subject matter herein.

In witness whereof, the Parties have duly executed this document as of the date first written below.

PJ Marx

PJ Marx

Date 17 FEB 05

U.S. Government, Department of Defense

by

GLENN A. DEAN  
MAJ, AR, DCD USAAC

Date 17 FEB 05

JOHN W. AMERICAN  
17 FEB 05



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## Bilateral Non-Disclosure Agreement

This agreement ("Agreement") is entered into as of the date last written below by and between PJ Marx having as his principal place of business 1880 University Parkway, Sarasota, FL 34243 (PJM), and Thomas A. "Tucker" Campion having as his principal place of business 7701 Tampa Point Blvd, MacDill AFB, FL 33608 ("TC") hereinafter known as the "Parties."

Whereas, PJM has developed a new form of high performance lead free projectile for small arms and has asked for the opportunity to present this projectile technology to TC.

Whereas, the Parties may have to disclose certain Confidential Information to each other, and

Therefore, in consideration of the promises made herein, the Parties agree to disclose and receive certain Confidential Information only under the following terms and conditions.

### 1. Confidential Information

1.1 **Definition.** As used herein, Confidential Information shall mean any information and data of a confidential or proprietary nature, which is disclosed by Disclosing Party to Receiving Party. Such Confidential Information includes, but is not limited to, proprietary technical, financial, personnel, marketing, pricing, sales and/or commercial information with respect to ammunition/ordnance development, operation, performance, cost, know-how, and business process of ammunition/ordnance, as well as ideas, concepts, designs and inventions, and all record bearing media containing or disclosing such information and techniques which are disclosed pursuant to this Agreement.

1.2 **Purpose.** The purpose of the disclosure of Confidential Information is to enable the Parties to advance their efforts in providing improved ammunition/ordnance related products to the Government of the United States of America. Receiving Party shall use the Confidential Information from the Disclosing Party for this purpose only. Either TC or PJM may be a Receiving Party under the terms hereof.

1.3 **Designation.** The disclosing Party shall designate all Confidential Information as such. All tangible or written information, whether in hard or soft copy, shall be so designated in writing at the time disclosure. If the Confidential Information is disclosed orally, it shall be prefaced as Confidential Information, or the entire meeting wherein such information is disclosed shall be described in advance as containing Confidential Information. All verbal information shall be so designated verbally at the time of disclosure and summarized and marked as confidential in a written memorandum delivered to the Receiving Party within thirty (30) days of the disclosure. Confidential Information may also include tangible products or materials transmitted to the Receiving Party with an accompanying written memorandum. Information that is not designated as Confidential Information in accordance with the terms of this section shall not be considered Confidential Information.

1.4 **Ownership.** The Disclosing Party retains all right, title and interest in the Confidential Information.

1.5 **No Warranties.** The Disclosing Party assumes no responsibility for any loss or damages to the Receiving Party, its customers or any third parties caused by or arising from the Confidential Information. The Disclosing Party makes no warranties of any kind, whether expressed or implied, including but not limited to, any implied warranty of merchantability of the Confidential Information or fitness of the Confidential Information for a particular purpose.

### 2. Nondisclosure

2.1 **Use of Confidential Information.** The receiving Party may only use the Confidential Information for the purposes stated in subsection 1.2 above. The Receiving Party recognizes that this Agreement imposes an affirmative duty to hold such information in confidence and protect it from dissemination to and use by an unauthorized person. In the absence of the Disclosing Party's prior written consent, the Receiving Party shall not reproduce nor disclose the Confidential Information to any third party.



**2.2 Further Responsibility.** The Receiving Party agrees to use the same degree of care to protect the confidentiality of the Confidential Information, as it would to protect its own trade secret, but in no case less than a reasonable degree of care. Receiving Party will grant access to the Confidential Information only to its employers/employees/consultants who have a clear need to know for purposes of this Agreement and shall advise those employers/employees/consultants of the existence and terms of this Agreement and of the obligations of confidentiality herein. Each Party shall be responsible for the breach of the terms of this Agreement by such Party or its employees.

**2.3 Exceptions.** The foregoing notwithstanding, no information shall be considered Confidential Information if such information (a) was in the Receiving Party's possession before its execution of this Agreement, as established by Receiving Party's records; (b) is or becomes a matter of public knowledge through no fault or without violation of any duty of confidentiality of the Receiving Party, or (c) is rightfully received by the Receiving Party from a third party without a duty of confidentiality owed to the Disclosing Party; (d) is independently developed by the Receiving Party without reference to the Information Received hereunder; or (e) is disclosed by the Receiving Party with the Disclosing Party's prior written consent. Neither Party shall be liable for disclosure of Confidential Information if disclosure was in response to a valid order of a court or authorized agency of government, provided that prior written notice first be given to the Disclosing Party so that a protective order of relief, if appropriate, may be sought by the Disclosing Party.

### **3. General.**

**3.1 Term and Termination.** The Receiving Party shall maintain the Confidential Information in confidence in accordance with the terms of this Agreement for a period of three (3) years from the date of receipt of the Confidential Information, excepting, however, that any Receiving Party receiving any information that is subsequently deemed "Classified" by the United States Government shall upon notification by the Disclosing Party hold this Confidential Information in strict confidence for so long as such information is deemed "Classified" by the United States Government. Either party may terminate this Agreement upon written notice to the other. Duties of non-disclosure as set forth in Section 2 of this Agreement survive any termination of the Agreement. Upon the expiration or earlier termination of this Agreement, or upon request by the Disclosing Party, the Receiving Party will cease to use the Confidential Information and will deliver to the Disclosing Party all documents, papers, drawings, tabulations, reports, documentation and other record bearing media obtained in the course of this Agreement, except that one copy of the Confidential Information may be retained by the legal department of the Receiving Party for archival purposes.

**3.2 No Further Rights.** No license to the Receiving Party under any trademark, patent or copyright or applications for same which are now or may thereafter be obtained by the Disclosing Party, is either granted or implied by the conveying of Confidential Information to the Receiving Party. Nothing in this Agreement shall grant to either party the right to make commitments of any kind for or on behalf of the other party. This Agreement shall not constitute a joint venture or partnership as between the parties. The parties shall perform their respective obligations hereunder without charge to the other.

**3.3 No Conflicts.** Each of the Parties represents and warrants that its actions with respect to this Agreement do not conflict with any prior obligations to any third party. The Parties further agree not to disclose or to use on behalf of the other party any Confidential Information belonging to any third party unless sufficient written authorization from the third party is provided.

**3.4 Securities Issues.** If the information disclosed hereunder is material non-public information about the Disclosing Party, then the Receiving Party agrees not to trade in the securities of the Disclosing Party or in the securities of any appropriate and relevant third party until such time as no violation of the applicable laws would result from such securities trading.

**3.5 General Terms.** Neither Party may sell, transfer, or assign this Agreement except to entities completely controlling or controlled by that Party or to entities acquiring all or substantially all of its assets, without the prior written consent of the other, which consent shall not be unreasonably withheld. Any act in derogation of the foregoing shall be null and void, provided however, that any such assignment shall not relieve the assigning Party of its obligations hereunder. Written notice, however, in the event of any Assignment is required.

**3.6 Benefit/Waiver.** This agreement shall be binding upon and inure to the benefit of the Parties and their rightful successors and assigns. The waiver or failure of either Party to exercise in any respect any right provided for in this Agreement shall not be deemed a waiver of any further right under this Agreement.



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**3.7 Severability/Amendments.** If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, it shall be enforced to the extent legally permissible and as necessary to reflect the intent of the Parties and shall not affect the remaining provisions of this Agreement, which shall remain in full force and effect. This Agreement may only be amended by a writing executed by both Parties. This Agreement is binding upon each Party and their affiliates.

**3.8 Governing Law.** This Agreement shall be deemed to be a contract made under the laws of the State of Florida and shall be governed by the laws thereof. This Agreement represents the entire agreement between the Parties with respect to the subject matter herein.

In witness thereof, the Parties have duly executed this document as of the date first written below.

PJ Marx



PJ Marx

Date

6/23/05

Tucker Champion



Tucker Champion

Date

6/23/05



D



## **Bilateral Non-Disclosure Agreement**

This agreement ("Agreement") is entered into as of the date last written below by and between PJ Marx having as his principal place of business 1880 University Parkway, Sarasota, FL 34243 (PJM), and Charles Marsh having as his principal place of business, Crane Naval Surface Warfare Center 300 Highway 361, Bldg 2521, Code 4083, Crane, IN 47522-5001 ("CM") hereinafter known as the "Parties."

Whereas, PJM has developed a new form of high performance lead free projectile for small arms and has asked for the opportunity to present this projectile technology to CM.

Whereas, the Parties may have to disclose certain Confidential Information to each other, and

Therefore, in consideration of the promises made herein, the Parties agree to disclose and receive certain Confidential Information only under the following terms and conditions.

### **1. Confidential Information**

**1.1 Definition.** As used herein, Confidential Information shall mean any information and data of a confidential or proprietary nature, which is disclosed by Disclosing Party to Receiving Party. Such Confidential Information includes, but is not limited to, proprietary technical, financial, personnel, marketing, pricing, sales and/or commercial information with respect to ammunition/ordnance development, operation, performance, cost, know-how, and business process of ammunition/ordnance, as well as ideas, concepts, designs and inventions, and all record bearing media containing or disclosing such information and techniques which are disclosed pursuant to this Agreement.

**1.2 Purpose.** The purpose of the disclosure of Confidential Information is to enable the Parties to advance their efforts in providing improved ammunition/ordnance related products to the Government of the United States of America. Receiving Party shall use the Confidential Information from the Disclosing Party for this purpose only. Either CM or PJM may be a Receiving Party under the terms hereof.

**1.3 Designation.** The disclosing Party shall designate all Confidential Information as such. All tangible or written information, whether in hard or soft copy, shall be so designated in writing at the time disclosure. If the Confidential Information is disclosed orally, it shall be prefaced as Confidential Information, or the entire meeting wherein such information is disclosed shall be described in advance as containing Confidential Information. All verbal information shall be so designated verbally at the time of disclosure and summarized and marked as confidential in a written memorandum delivered to the Receiving Party within thirty (30) days of the disclosure. Confidential Information may also include tangible products or materials transmitted to the Receiving Party with an accompanying written memorandum. Information that is not designated as Confidential Information in accordance with the terms of this section shall not be considered Confidential Information.

**1.4 Ownership.** The Disclosing Party retains all right, title and interest in the Confidential Information.

**1.5 No Warranties.** The Disclosing Party assumes no responsibility for any loss or damages to the Receiving Party, its customers or any third parties caused by or arising from the Confidential Information. The Disclosing Party makes no warranties of any kind, whether expressed or implied, including but not limited to, any implied warranty of merchantability of the Confidential Information or fitness of the Confidential Information for a particular purpose.

### **2. Nondisclosure**

**2.1 Use of Confidential Information.** The receiving Party may only use the Confidential Information for the purposes stated in subsection 1.2 above. The Receiving Party recognizes that this Agreement imposes an affirmative duty to hold such information in confidence and protect it from dissemination to and use by an unauthorized person. In the absence of the Disclosing Party's prior written consent, the Receiving Party shall not reproduce nor disclose the Confidential Information to any third party.



**2.2 Further Responsibility.** The Receiving Party agrees to use the same degree of care to protect the confidentiality of the Confidential Information, as it would to protect its own trade secret, but in no case less than a reasonable degree of care. Receiving Party will grant access to the Confidential Information only to its employers/employees/consultants who have a clear need to know for purposes of this Agreement and shall advise those employers/employees/consultants of the existence and terms of this Agreement and of the obligations of confidentiality herein. Each Party shall be responsible for the breach of the terms of this Agreement by such Party or its employees.

**2.3 Exceptions.** The foregoing notwithstanding, no information shall be considered Confidential Information if such information (a) was in the Receiving Party's possession before its execution of this Agreement, as established by Receiving Party's records; (b) is or becomes a matter of public knowledge through no fault or without violation of any duty of confidentiality of the Receiving Party, or (c) is rightfully received by the Receiving Party from a third party without a duty of confidentiality owed to the Disclosing Party; (d) is independently developed by the Receiving Party without reference to the Information Received hereunder; or (e) is disclosed by the Receiving Party with the Disclosing Party's prior written consent. Neither Party shall be liable for disclosure of Confidential Information if disclosure was in response to a valid order of a court or authorized agency of government, provided that prior written notice first be given to the Disclosing Party so that a protective order of relief, if appropriate, may be sought by the Disclosing Party.

### **3. General**

**3.1 Term and Termination.** The Receiving Party shall maintain the Confidential Information in confidence in accordance with the terms of this Agreement for a period of three (3) years from the date of receipt of the Confidential Information, excepting, however, that any Receiving Party receiving any information that is subsequently deemed "Classified" by the United States Government shall upon notification by the Disclosing Party hold this Confidential Information in strict confidence for so long as such information is deemed "Classified" by the United States Government. Either party may terminate this Agreement upon written notice to the other. Duties of non-disclosure as set forth in Section 2 of this Agreement survive any termination of the Agreement. Upon the expiration or earlier termination of this Agreement, or upon request by the Disclosing Party, the Receiving Party will cease to use the Confidential Information and will deliver to the Disclosing Party all documents, papers, drawings, tabulations, reports, documentation and other record bearing media obtained in the course of this Agreement, except that one copy of the Confidential Information may be retained by the legal department of the Receiving Party for archival purposes.

**3.2 No Further Rights.** No license to the Receiving Party under any trademark, patent or copyright or applications for same which are now or may thereafter be obtained by the Disclosing Party, is either granted or implied by the conveying of Confidential Information to the Receiving Party. Nothing in this Agreement shall grant to either party the right to make commitments of any kind for or on behalf of the other party. This Agreement shall not constitute a joint venture or partnership as between the parties. The parties shall perform their respective obligations hereunder without charge to the other.

**3.3 No Conflicts.** Each of the Parties represents and warrants that its actions with respect to this Agreement do not conflict with any prior obligations to any third party. The Parties further agree not to disclose or to use on behalf of the other party any Confidential Information belonging to any third party unless sufficient written authorization from the third party is provided.

**3.4 Securities Issues.** If the information disclosed hereunder is material non-public information about the Disclosing Party, then the Receiving Party agrees not to trade in the securities of the Disclosing Party or in the securities of any appropriate and relevant third party until such time as no violation of the applicable laws would result from such securities trading.

**3.5 General Terms.** Neither Party may sell, transfer, or assign this Agreement except to entities completely controlling or controlled by that Party or to entities acquiring all or substantially all of its assets, without the prior written consent of the other, which consent shall not be unreasonably withheld. Any act in derogation of the foregoing shall be null and void, provided however, that any such assignment shall not relieve the assigning Party of its obligations hereunder. Written notice, however, in the event of any Assignment is required.

**3.6 Benefit/Waiver.** This agreement shall be binding upon and inure to the benefit of the Parties and their rightful successors and assigns. The waiver or failure of either Party to exercise in any respect any right provided for in this Agreement shall not be deemed a waiver of any further right under this Agreement.



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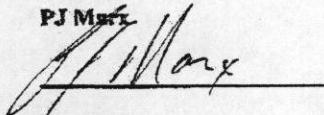
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**3.7 Severability/Amendments.** If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, it shall be enforced to the extent legally permissible and as necessary to reflect the intent of the Parties and shall not affect the remaining provisions of this Agreement, which shall remain in full force and effect. This Agreement may only be amended by a writing executed by both Parties. This Agreement is binding upon each Party and their affiliates.

**3.8 Governing Law.** This Agreement shall be deemed to be a contract made under the laws of the State of Florida and shall be governed by the laws thereof. This Agreement represents the entire agreement between the Parties with respect to the subject matter herein.

In witness thereof, the Parties have duly executed this document as of the date first written below.

PJ Marx

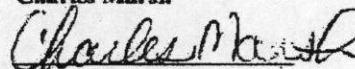


PJ Marx

Date

1/11/06

Charles Marsh



Charles Marsh

Date

1/11/06